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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/493,091	01/28/2000	Patrick Brindel	Q57709	1773

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EXAMINER

LI, SHI K

ART UNIT	PAPER NUMBER
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2633

12

DATE MAILED: 11/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/493,091

Applicant(s)

BRINDEL ET AL.

Examiner

Shi K. Li

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003 and 21 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 August 2003 has been entered.

Claim Objections

2. Claims 5-6 are objected to because of the following informalities: the phrase "The system claim" in line 1 of the claims should read "The system claimed". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 1 recites the limitation "said set of channels" in lines 9-10 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-2, 5, 8 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Tanaka et al. (U.S. Patent 6,512,613 B1).

Tanaka et al. discloses in FIG. 1 a WDM transmission system comprising a transmitter 10 for transmitting a set of wavelength channels, a receiver 20, optical fiber 41 and a set of repeaters. As indicated in FIG. 1, each repeater only processes a subset of the WDM channels based on channel wavelength.

8. Applicant has claimed, based on foreign priority papers, a priority date earlier than that of the prior art reference cited above. However, an English translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

9. Claims 1, 5 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki (U.S. Patent 5,524,144).

Suzuki teaches in FIG. 5 a WDM transmission system comprising a transmitter 1 for transmitting a set of wavelength channels, a receiver 2 and a set of repeaters 3. Suzuki teaches in FIG. 9 and col. 12, lines 25-34 that a repeater only repeats a subset of the wavelength channels.

Claim Rejections - 35 USC § 103

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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11. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (U.S. Patent 5,524,144) in view of ITU G.692 (ITU-T G.692, "Optical Interfaces for Multichannel Systems with Optical Amplifiers", October 1998, pp. 1, 4-5).

Suzuki has been discussed above in regard to claims 1, 5 and 8. Regarding claim 2, the difference between Uehara and the claimed invention is that Suzuki does not teach that the number of channel repeater is a submultiple of the number of channels. However, it is well known in the art that the number of channels depends on the applications and the number of repeaters depends on the distance between the source and the destination. For example, ITU G.692 lists in Table 2 a 16-channel system with 3 spans. The number of repeater is one less than the number of spans. That is, the number of repeater is a submultiple of the number of channels. One of ordinary skill in the art would have been motivated to combine the teaching of ITU G.692 with the transmission system of Suzuki because following international standards promotes interoperability. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to deploy transmission system with 16 channels and 2 regenerators, as taught by ITU G.692, based on the transmission system of Suzuki because following international standards promotes interoperability.

12. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (U.S. Patent 6,512,613 B1) in view of Kinoshita (U.S. Patent 6,023,366).

Tanaka et al. has been discussed above in regard to claims 1-2, 5, 8 and 10. The difference between Tanaka et al. and the claimed invention is that Tanaka et al. has 8 channels in a group. However, it is understood that Tanaka et al. uses a 32-channel WDM system and processes 8 channels in each repeater as an example. One skill in the art understands that the

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concept applies to other numbers of channels. For example, Kinoshita discloses in FIG. 1 a WDM transmission system with 4 channels for payload. In such case, each repeater of FIG. 1 of Tanaka et al. needs only process one channel. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to process one channel in each repeater in the transmission system of Tanaka et al. when the number of channels is small.

13. Claims 4 and 6-7 rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (U.S. Patent 6,512,613 B1) in view of Cao (U.S. Patent 6,337,755 B1).

Tanaka et al. has been discussed above in regard to claims 1-2, 5, 8 and 10. Regarding claim 4, the difference between Tanaka et al. and the claimed invention is that Tanaka et al. does not teach optical regenerator. Cao teaches in FIG. 1 the art of optical regenerator and gives in col. 1, lines 25-27 some of the advantages of an optical regenerator, namely bit rate independence, high speed and low cost. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use optical regenerator, as taught by Cao, in the transmission system of Tanaka et al. because of its bit rate independence, low cost and high speed.

Regarding claim 7, the modulator in FIG. 1 of Cao includes a clock recovery circuit 24 to synchronize with the modulator and the modulator is a synchronous modulator as described in col. 3, lines 35-38.

14. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (U.S. Patent 5,524,144) in view of Bo et al. (W. Bo et al., "Fiber Gratings Based Optical Add/Drop Multiplexer with Low Interferometric Crosstalk", International Conference on Communication Technology, ICCT'98, October 22-24, 1998).

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Suzuki has been discussed above in regard to claims 1, 3, 8 and 11-12. The difference between Suzuki and the claimed invention is that Suzuki uses a multiplexer/demultiplexer to separate the channel and recombine the channels while the claimed invention uses inserter/extractor for isolating channels. Bo et al. teaches an OADM in FIG. 2 which can be used to extract/insert one or more specific channel from a WDM system. This OADM is ideal for extracting a small number of channels and has low insertion loss and good isolation. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use an inserter/extractor to isolate the channels and recombine the channels, as taught by Bo et al., in the transmission system of Suzuki because an inserter/extractor has low insertion loss and good isolation.

15. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (U.S. Patent 6,512,613 B1) in view of Kinoshita (U.S. Patent 6,023,366).

Tanaka et al. has been discussed above in regard to claims 1-2, 5, 8 and 10. The difference between Tanaka et al. and the claimed invention is that Tanaka et al. does not teach supervisory channel. Kinoshita teaches in FIG. 1 to use a dedicated channel λ_{SV} for supervisory purpose. One of ordinary skill in the art would have been motivated to combine the teaching of Kinoshita with the transmission system of Tanaka et al. because a supervisory channel can be used to convey information about channels for the payload and monitor the status of amplifiers and repeaters. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a dedicated channel for supervisory purpose, as taught by Kinoshita, in the transmission system of Tanaka et al. because a supervisory channel can be used

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to convey information about channels for the payload and monitor the status of amplifiers and repeaters.

Regarding claim 12, Kinoshita teaches in FIG. 1 means 24 for separating the dedicated channel.

Regarding claim 13, Kinoshita teaches in FIG. 2 the delivery of optical output signal to the supervisory unit.

16. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (U.S. Patent 5,524,144) in view of Chraplyvy et al. (U.S. Patent 5,847,862).

Suzuki has been discussed above in regard to claims 1, 5 and 8. The difference between Suzuki and the claimed invention is that Suzuki does not teach the arrangement of amplifiers and regenerators such that the spacing of optical regenerators is a multiple of the spacing of the optical amplifiers. Chraplyvy et al. teaches in FIG. 1 the position of a plurality of amplifiers between regenerators because fiber causes attenuation but introduces very little noise and, therefore, amplification of signal is required more often than regeneration of signal. One of ordinary skill in the art would have been motivated to combine the teaching of Chraplyvy et al. with the transmission system of Suzuki because the arrangement of Chraplyvy et al. minimize the placement of expensive regenerators. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to position multiple amplifiers between regenerators, as taught by Chraplyvy et al., in the transmission system of Suzuki.

Response to Arguments

17. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 703 305-4341. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703 305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-3900.

skl


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